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Nine Beautiful Things: A Self-Administered Online Positive Psychology Intervention on the Beauty in Nature, Arts, and Behaviors Increases Happiness and Ameliorates Depressive Symptoms

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Abstract

We tested the effectiveness of a self-administered online positive psychology intervention which addressed the appreciation of beauty and excellence on happiness and depression directly after the intervention, after one week, and one, three, and six months. One hundred thirteen adults were randomly assigned to a "9 beautiful things" intervention (IG; n = 59), or a placebo control group ("early memories"; n = 54). Participants in the IG were asked to write down (a) three beautiful things in human behavior; (b) three things they experienced as beautiful in nature and/or the environment; and (c) three beautiful things related to beauty in general that they observed. Findings show increased levels of happiness in the intervention group at post-test, after one week and one month, and amelioration of depressive symptoms at the post test and one week after the intervention. The effect sizes were small to medium (η^2 = .03 to .07). Overall, this initial study provides support for the notion that the "9 beautiful things" intervention may be effective in increasing people's well-being—at least in a short term.

The study of aesthetics and beauty has a long tradition in psychology (e.g., Berlyne, 1974; Birkhoff, 1933; Eysenck, 1940; Martindale, 1988). Recently, research in this area has focused on numerous facets including moral beauty, awe, excellence, openness to aesthetics, and beauty as a character strength (e.g., Costa & McCrae, 1992; Diessner, Solom, Frost, Parsons, & Davidson, 2008; Güsewell & Ruch, 2012b; Keltner & Haidt, 2003, 2004; Martínez-Martí, Hernández-Lloreda, Avia, 2014; Peterson & Seligman, 2004; Reber, Schwarz, & Winkielman, 2004). Models such as the *appreciation of beauty and excellence* model (Haidt & Keltner, 2004) or the *appreciation of and engagement with beauty* model (Diessner et al., 2008) have been developed and contribute to the understanding of inter-individual differences in how beauty is perceived.

One of the objectives of the emerging field of positive psychology is the evaluation and development of so-called positive psychology interventions (i.e., "[…] treatment methods or intentional activities that aim to cultivate positive feelings, behaviors, or cognitions"; Sin & Lyubomirsky, 2009; p. 468). There is robust meta-analytic evidence that these deliberate activities are effective in increasing subjective well-being and ameliorating depression (Bolier et al., 2013; Sin & Lyubomirsky, 2009), but none of these studies has addressed the role of the appreciation of beauty and excellence. A recent study also shows that the way people work with these interventions is predictive of happiness and depressive symptoms after a time-span of 3.5 years (Proyer, Wellenzohn et al., 2015).

The notion that positive psychology interventions that are based on the *appreciation of beauty and excellence* (ABE) may be effective for increasing well-being and ameliorating depressive symptoms receives support from a broad range of studies. For example, Güsewell and Ruch (2012b) found a robust positive relation between ABE as a strength of character and different types of positive emotions as assessed via the *Dispositional Positive Emotion Scales* (Shiota, Keltner, & John, 2006); numerically highest relations were found for awe,

object or situation specific positive emotions, joy, and self-oriented positive emotions. The strength of appreciation of beauty and excellence is also positively associated with various indicators of subjective well-being— although low in size, it is robust across a broad range of studies (e.g., Peterson, Ruch, Beermann, Park, & Seligman, 2007; Proyer, Ruch, & Buschor, 2013; Ruch, Proyer, Harzer, Park, Peterson, & Seligman, 2010). Recently, Martinez-Marti and colleagues (2014) found that 97% of the participants in a three-week web-based intervention to train ABE reported a higher degree of well-being after the intervention (authors do not report comparisons with a control condition).

This study builds upon earlier work by Diessner et al.'s (2006; 2008) framework. As mentioned, Diessner argues that three components should be distinguished: namely, natural, artistic, and moral beauty. Diessner et al. (2006) showed that engagement with natural, artistic, and moral beauty led to an increase in the trait *hope* in college students (n = 32 in the experimental and n = 29 in the control condition at the beginning of the program) in comparison with a control condition (students in a different lecture that did not receive any assignments). Additionally, the intervention led to an increase in the engagement with moral beauty. Students in the intervention condition were required to keep "Beauty logs" for 12 weeks as part of the syllabus for the class they attended with this instruction:

> "The assignment is to identify and describe three aspects of beauty that you observe during the week before the assignment is due. 1) Describe something you felt was beautiful that is from nature. 2) Describe something you felt was beautiful that is human-made (arts and crafts in its broadest definition). 3) Describe something you felt was beautiful in human behavior (good deeds in their broadest definition). A minimum of three sentences is required (one sentence for each of the three: nature, art, morality), and a maximum of three paragraphs is allowed" (Diessner et al., 2006; p. 309).

Our aim was to extend this study in several ways. Diessner and colleagues (2006) did not have a placebo-control condition and the sample size was rather small and consisted of students only. Therefore, we employed a placebo-controlled design with a larger and more diverse sample, provided the interventions in a self-administered online setting, and adapted the dependent variable from the trait *hope* to happiness and depressive symptoms for testing the contribution of a beauty intervention on these variables.

The beauty intervention is an adaptation of Diessner et al.'s (2006) instruction combined with elements of the "three good things" (Seligman et al., 2005) / "three funny things"-intervention (Gander et al., 2013; Proyer et al., 2014; Wellenzohn, Proyer, & Ruch, in press) to make it more suitable for application in a self-administered setting. This led to the development of the "9 beautiful things"-intervention. The task of the participants was to write down (a) three beautiful things in *human behavior* (morally positively valued behavior, good deeds); (b) three things they experienced as beautiful in *nature and/or the environment*; and (c) three beautiful things *in general* (referring to aesthetics) that they noticed during the day. Additionally, participants were required to note why they found each of these things beautiful. We tested this intervention first in an earlier program in a variant that allowed its administration in a group setting. However, it was not possible to test the effectiveness of this intervention separately, because it was administered together with interventions for creativity, kindness, love of learning, and perspective (Proyer, Ruch, & Buschor, 2013). The placebo-control condition in the present study was the "early memories" intervention (writing about early childhood memories each night for seven consecutive days; see Seligman et al., 2005). Changes in happiness and depression were measured directly after the completion of the intervention (post measure), after one week, and one, three, and six months.

Overall, we expected that the "9 beautiful things" intervention would be effective in increasing well-being and ameliorating depression in a placebo-controlled online

intervention. This study enables testing long-term effects for the intervention. However, the expectations for the sustainability of the effects are of exploratory nature only. Only few interventions are effective for a time span of up to six months (see e.g., Gander et al., 2013; Mongrain & Anselmo-Matthews, 2012; Proyer et al., 2014; Seligman et al., 2005). Nevertheless, we wanted to examine this time span for a better approximation of the effectiveness of the interventions. It was expected that the intervention would be effective for a longer period than only directly after the completion of the intervention (post-test), as focusing on beautiful things could be easily integrated in participants' daily life and, thus, facilitate long-term effects (cf. Lyubomirsky, Sheldon, & Schkade, 2005). Furthermore, we tested for moderating effects of happiness and depression at baseline (see e.g., Gander et al., 2013; Proyer, Wellenzohn et al., 2015). It was expected that those participants with greater levels of depressive symptoms and lower levels of happiness at pretest would benefit more from the intervention (see Sin & Lyubomirsky, 2009).

Method

Participants

The sample consisted of 113 German-speaking adults (9.7% men); $n = 59$ were in the beauty intervention group (IG) and $n = 54$ in the placebo control group (PCG). Their mean age was 43.8 years ($SD = 9.93$; range 18-68 years). The largest portion was married (46%); 22.1% were in a relationship, 18.6% were single, and 3.3% were separated or divorced. The sample was rather well-educated with 37.2% holding a degree from university, 19.5% had a degree from an applied university, 22.1% had vocational training and 1.8% had finished school, and two participants had not finished school. Participants in the two groups did not differ in age ($t[1, 111] = .78$, $p = .44$), gender (χ^2 [1, $N = 113$] = 0.22, $p = .64$), or educational level, $\chi^2(4, N = 93) = 0.12$, $p = 1.00$.

Instruments

The *Authentic Happiness Inventory* (AHI, Seligman et al., 2005; German version as used by Ruch et al., 2010) was developed as a sensitive measure for changes in happiness in intervention studies. It consists of 33 sets of five statements describing an individual's feelings during the past week (e.g., "My life is a bad one" through "My life is a wonderful one"). The AHI has been widely used in research; good psychometric properties and support for its validity have been reported (e.g., Gander et al., 2013; Proyer et al., 2014; Shapira & Mongrain, 2010). The alpha coefficient in this sample was .93 (pre-test).

The *Center for Epidemiologic Studies Depression Scale* (CES-D, Radloff, 1977; German version by Hautzinger & Bailer, 1993) consists of 20 items assessing the presence and duration of depressive symptoms during the past week (e.g., "I thought my life had been a failure"). It utilizes a 4-point answer format ranging from 0 = "Rarely or None of the Time [Less than 1 Day]" to 3 = "Most or All of the Time [5–7 Days]". It is widely used in research and practice (see Shafer, 2006) and has already been used in numerous intervention studies. The alpha coefficient in this sample was .94 (pre-test).

Procedure

The study was advertised as an online intervention program for *strengthening your strengths* via flyers and in local newspapers. As in earlier studies (Gander et al., 2013; Proyer, Gander et al., 2014, 2015; Proyer et al., 2013), we omitted advertising the program as "happiness activities" to avoid priming the participants towards the dependent variables. Prospective participants were guided to the study website for procedure instructions and registration. Participants had to create a personal account, secured with a username and password. At this point, participants were randomly assigned (using an automated algorithm, based on a Mersenne-Twister) to the beauty intervention or the early childhood memories activity (placebo control condition; see Seligman et al., 2005). Firstly, participants had to fill in basic questionnaires to assess demographic information (basic assessment) and the pretest

data for happiness and depression (plus questionnaires on a broad range of personality variables to avoid a focus on the dependent variables). Secondly, they had to click through a short online-presentation on the topic (developed for a lay audience entitled "What does psychology know about the appreciation of beauty and excellence?" without addressing its relationship to happiness or depression) or about childhood memories. After seeing the presentation, the participants had access to a PDF-document. This document contained brief information (one page) on the theoretical background and the detailed instructions of the particular intervention. The instruction for the participants in the beauty-intervention was (here given in an abbreviated version):

> "On each evening over the next seven days, please set about 15 minutes aside before going to bed and think about nine beautiful things that happened during the day. Then, write down three personal beautiful experiences for each of the following categories: (a) three beautiful things in *human behavior* (morally positively valued behavior, good deeds); (b) three beautiful things in *nature and/or the environment*; and (c) three beautiful things *in general*. Please also note why you have experienced this particular thing as beautiful."

We added several examples for each of the categories for highlighting that participants should focus on everyday experiences and observations and that the general-category refers to the broader area of *aesthetics*. Participants were asked to print this document and/or to save it on their computer and conduct the activity for seven consecutive days. They were invited to the website after the training (i.e., at day eight) to complete the post measures (six in total; i.e., before and after the intervention, as well as after one week, one, three, and six months). At each measurement point, participants received an e-mail inviting them to the website and to complete the questionnaires. If there were questionnaires left unanswered the day after the designated day, the respective participants received another

reminder via e-mail. Participants were not paid, but were given a personalized feedback on changes in happiness and depressive symptoms (upon completion of all follow-ups).

Results

Preliminary analyses: Drop out rate. The dropout-rates did not differ between the conditions; namely, 50.9% for the intervention and 44.33% for the placebo group, $t(215) = 0.95$, $p = .34$. The drop-out rate was in the expected range for Internet-based intervention studies (on average 50% at post-test and up to 79% at a six-months follow-up; Mitchell et al., 2009). A further analysis suggested that those participants that completed all follow-ups differed neither from those that dropped out earlier in their baseline levels of happiness and depressive symptoms nor in any of the assessed demographic variables (i.e., age, sex, level of education; all comparisons *n.s.*). Furthermore, there were no differences between the intervention and the placebo-group in their baseline levels of happiness ($t[109] = 0.30$, $p = .76$) or depressive symptoms, $t(111) = -0.13$, $p = .90$.

Effectiveness of the nine beautiful things intervention. We computed planned contrasts, and compared the intervention with the placebo group at each time period in comparison with the pretest in both, happiness and depressive symptoms (comparison of two groups × two time periods); namely, analyzing whether the changes in the dependent variables in the intervention group exceeded those in the placebo control group. Table 1 gives the means, standard deviations, and planned contrasts for the AHI and CES-D for both groups.

Insert Table 1 about here

Table 1 shows that changes in happiness and depressive symptoms were in the expected direction in the intervention group. Their increase in happiness was stronger in

comparison with the placebo group directly after the intervention, one week later (demonstrating the numerically strongest effect), and one month after the intervention. There was amelioration of depressive symptoms, but only for the time point directly after the intervention and one week later. Hence, there were robust short-term effects for the intervention for up to one month.

When testing for moderating effects of the baseline levels of happiness and depressive symptoms on the intervention effectiveness (planned contrast comparing the pretest scores with all later measurement periods between the intervention and the placebo group), no effects were found; happiness: $F[1, 109] = 0.41$, $p = .52$; depressive symptoms: $F[1, 109] = 1.82$, $p = .18$. However, when using a cut-off score of 16 in the CES-D (see Gander et al., 2013) and analyzing the effectiveness of the intervention separately for those above and below this score, there was a trend pointing toward greater effectiveness in the group with higher levels of depressive symptoms[1]. These findings should be interpreted with caution due to the low power and small effect sizes in the analyses.

Discussion

This study adds to the growing literature on positive psychology interventions in several ways. In line with existing literature (see Bolier et al., 2014; Sin & Lyubomirsky, 2009), we found support for the notion that these types of interventions are effective in increasing well-being and ameliorating depressive symptoms. The "9 beautiful things"-intervention was effective in the short term in a self-administered online setting. This study also provides evidence that an intervention targeting the appreciation of beauty in *human behavior* (morally positively valued behavior), *nature and/or the environment*, and aesthetics (beautiful things *in general*) are effective in increasing well-being. Comparatively few studies exist that address the appreciation of beauty and excellence (ABE) and its effects on

[1] Means, standard deviations, and ANOVA results for the subsamples are available upon request from the authors.

well-being. Diessner et al. (2006) tested effects on the trait *hope* and other studies targeting this trait did not allow disentangling the effects of a beauty-intervention from other interventions (Proyer, Ruch, & Buschor, 2013). Recently, Martínez-Martí et al. (2014) provided further evidence for the effectiveness of an ABE intervention; they found increases in both ABE and well-being *within* an intervention group over time. Hence, there is potential in this type of interventions and future studies are needed that identify moderators of the effectiveness. In particular, a more thorough analysis of enabling conditions that allow for more sustainable changes than those reported in this study will be needed.

The main finding of this study is that there are short-term increases in happiness (up to one month) and a decrease in depressive symptoms for one week after the intervention. Of course, these are only comparatively short time periods, but it needs to be highlighted that we cover long time periods in this study. For example, only 10/39 interventions reported in the meta-analysis by Sin and Lyubomirsky (2009) include follow-ups after *three* months or more. Nevertheless, if thinking of applying interventions to a broad audience it is evident that the "9 beautiful things" intervention demonstrates short-term effects only. Contrary to our expectations, there were no moderating effects on the baseline levels in the dependent variables, happiness and depressive symptoms. Separately conducted analyses using a sensitive cut-off score in our measure for depression (Radloff, 1977) pointed towards a trend for greater effectiveness of the intervention in those that were slightly depressed. However, caution is warranted in the interpretation of this findings given the low power and small effect sizes in these analyses. Larger samples will be needed for a more thorough analysis of this finding. A particular effectiveness of the intervention in groups with greater expressions in depressive symptoms or even clinically depressed people still needs to be tested in separate studies.

The present study has several limitations. The male : female-ratio is imbalanced and this may have had an impact on the findings. Online studies have advantages, but one disadvantage is that we do not have control on *how* the participants conduct the intervention and *what* they write down. Therefore, we do not know whether they have also focused on "good things" in general that they experienced while observing the different aspects of *beauty*. Therefore, it would be interesting to see whether the nature of the productions and the content (only directed at beauty-experiences or a mixture of experiences) also have an impact on the effects. For example, one might argue that those who report new beautiful things each day benefit more from such an intervention than those who write the same or similar things each day. This is also in line with the notion that the *variability* in happiness-promoting activities is important (Sheldon & Lyubomirsky, 2012). We did not consider the person × intervention fit for this study. There is good evidence that the fit between personal characteristics and characteristics of the intervention have an effect on its efficiency (e.g., Proyer, Wellenzohn et al., 2015; Schueller, 2011). Finally, for a follow-up study, it would be advisable to assess what types of positive emotions are elicited in this intervention and whether they differ from those elicited by other interventions. It has been argued that the experience of positive emotions (Fredrickson, 2001) facilitates the effectiveness of positive interventions. However, it is still unclear whether different types of positive emotions differ with respect to their potential in triggering more or less sustainable (cognitive and behavioral) effects. Thus, ABE-related emotions (such as *awe*) might be different in their effects from emotions such as *amusement* (as in the "three funny things"-exercise; Gander et al., 2013; Wellenzohn et al., in press). One might argue that these differences also partially account for the differences in the sustainability of the interventions (i.e., for how long they are effective). Further, the type of emotion that should be elicited to achieve best possible effects might also depend on individual differences (such as the baseline levels in well-being). While we were

able to test for selected moderating effects, we could not control for individual differences in ABE in this study. One might argue that not only considering ABE as a whole, but also differentiating among the facets covered in this study would be of interest (see also Güsewell & Ruch, 2012a).

Overall, the study shows that an online, self-administered positive psychology intervention targeting the appreciation of beauty and excellence is effective in increasing well-being and ameliorating depressive symptoms. The “9 beautiful things”-intervention can be seen as an addition to the inventory (or *toolbox*) of positive psychology interventions. The preliminary findings of this study are encouraging and seem to be a good starting point for future investigations in this line of research.

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Table 1

Means, Standard Deviations and Planned Contrasts of the Beauty Intervention With the Placebo Control Group in Happiness and Depressive Symptoms.

	Beauty intervention		Placebo control group		Planned contrasts	
	M	*SD*	*M*	*SD*	*F*	η^2
Pre						
Happiness	99.63	20.83	98.56	16.71	–	–
Depressive symptoms	15.02	11.77	15.23	9.66	–	–
Post						
Happiness	101.81	20.71	95.09	20.72	5.98*	.04
Depressive symptoms	11.17	9.72	15.28	11.61	5.26*	.04
One Week						
Happiness	105.08	21.46	95.69	20.01	8.53**	.07
Depressive symptoms	9.27	9.34	13.67	11.48	5.26*	.04
One Month						
Happiness	103.66	20.68	97.80	19.94	3.02*	.03
Depressive symptoms	11.27	9.39	14.17	12.11	1.51	–
Three Months						
Happiness	105.76	21.75	102.26	19.72	0.76	–
Depressive symptoms	11.03	9.84	11.56	9.52	0.02	–
Six Months						
Happiness	108.08	19.25	105.56	19.38	0.37	–
Depressive symptoms	11.03	9.84	11.56	9.52	0.40	–

Note. Happiness = Authentic Happiness Inventory; Depressive symptoms = Center for Epidemiologic Studies Depression Scale; Beauty intervention (n = 59); Placebo control group (n = 54); Planned contrasts = Time × Group-Effects (df = 1/111); η^2 = Eta squared.

*p < .05; **p < .01; ***p < .001 (one-tailed).